

### COMPRESSOR DEFINITION

Designation	VEM Z5C
Nominal Voltage/Frequency	230 V 53-150 Hz
Engineering Number	513902010

### A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 53-150	[ V / Hz ]	
4 Application type	Low Back Pressure		
4.1 Evaporating temperature range	-35°C to -10°C	(-31°F to 14°F)	
5 Motor type	BPM		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	187 to 255 V	187 to 255 V
8.2 LBP (43°C Ambient temperature)	Static	187 to 255 V	187 to 255 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	6.9	[kgf/cm <sup>2</sup> ] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm <sup>2</sup> ] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[ °C ]	

### B - MECHANICAL DATA

1 Commercial designation	1/10	[hp]
2 Displacement	4.99	[cm <sup>3</sup> ] (0.305 cu.in)
2.1 Bore [mm]	21.000	
2.2 Stroke [mm]	14.400	
3 Lubricant charge	220	[ml] (7.44 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	7.59	[kg] (16.73 lb.)
5 Nitrogen charge	-	[kgf/cm <sup>2</sup> ]

### C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	230 V 53-150 Hz 3 ~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VCC32456XXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	VCC32456XXXXX	
6 Start winding resistance	16.07	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	16.07	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (53/15 Hz)	2.10/2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (53/15 Hz)	2.10/2.10	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (53/15 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	CE - UKCA - VDE	

### D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V1600RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
145	37	42	26	0.21	0.46	5.49	1.38	1.61	

TEST CONDITIONS: @220V2000RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
189	48	55	33	0.25	0.59	5.82	1.47	1.71	

TEST CONDITIONS: @220V3000RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
284	72	83	49	0.38	0.89	5.83	1.47	1.71	

TEST CONDITIONS: @220V4500RPM			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 54.4°C (129.92°F)		
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
440	111	129	78	0.58	1.38	5.66	1.43	1.66	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		ASHRAE32 Static					(Condensing temperature 35°C (+95°F) )			
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]
-35	(-31)	94	24	28	17	0.14	0.29	5.45	1.37	1.60
-30	(-22)	123	31	36	20	0.17	0.39	6.27	1.58	1.84
-25	(-13)	159	40	47	22	0.19	0.50	7.20	1.81	2.11
-20	(- 4)	204	51	60	25	0.21	0.64	8.29	2.09	2.43
-15	(+ 5)	260	65	76	27	0.23	0.82	9.60	2.42	2.81
-10	(+14)	328	83	96	29	0.24	1.04	11.19	2.82	3.28

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V1600RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	87	22	25	18	0.16	0.27	4.83	1.22	1.42	
-30 (-22)	117	29	34	21	0.18	0.37	5.60	1.41	1.64	
-25 (-13)	152	38	45	24	0.20	0.48	6.39	1.61	1.87	
-20 (- 4)	195	49	57	27	0.21	0.61	7.25	1.83	2.12	
-15 (+ 5)	247	62	72	30	0.23	0.78	8.24	2.08	2.41	
-10 (+14)	310	78	91	33	0.24	0.98	9.42	2.37	2.76	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V1600RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	70	18	21	18	0.17	0.22	3.95	1.00	1.16	
-30 (-22)	102	26	30	21	0.19	0.32	4.78	1.21	1.40	
-25 (-13)	139	35	41	25	0.20	0.43	5.54	1.40	1.62	
-20 (- 4)	181	46	53	29	0.22	0.57	6.29	1.58	1.84	
-15 (+ 5)	231	58	68	33	0.24	0.73	7.07	1.78	2.07	
-10 (+14)	290	73	85	36	0.27	0.92	7.96	2.01	2.33	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	119	30	35	22	0.19	0.37	5.34	1.35	1.57	
-30 (-22)	153	39	45	25	0.21	0.48	6.13	1.54	1.79	
-25 (-13)	200	50	58	28	0.23	0.63	7.12	1.79	2.09	
-20 (- 4)	259	65	76	31	0.26	0.81	8.33	2.10	2.44	
-15 (+ 5)	333	84	98	34	0.29	1.05	9.77	2.46	2.86	
-10 (+14)	421	106	123	37	0.31	1.33	11.43	2.88	3.35	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	96	24	28	22	0.17	0.30	4.33	1.09	1.27	
-30 (-22)	132	33	39	26	0.19	0.41	5.13	1.29	1.50	
-25 (-13)	179	45	53	29	0.23	0.56	6.08	1.53	1.78	
-20 (- 4)	239	60	70	33	0.26	0.75	7.16	1.80	2.10	
-15 (+ 5)	312	79	91	37	0.30	0.98	8.38	2.11	2.46	
-10 (+14)	397	100	116	41	0.34	1.25	9.75	2.46	2.86	

### E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V2000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	87	22	26	23	0.19	0.27	3.85	0.97	1.13	
-30 (-22)	123	31	36	26	0.21	0.38	4.64	1.17	1.36	
-25 (-13)	168	42	49	31	0.24	0.53	5.49	1.38	1.61	
-20 (- 4)	225	57	66	35	0.28	0.71	6.40	1.61	1.87	
-15 (+ 5)	292	74	86	40	0.32	0.92	7.37	1.86	2.16	
-10 (+14)	372	94	109	44	0.37	1.18	8.42	2.12	2.47	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	166	42	49	34	0.25	0.52	4.87	1.23	1.43	
-30 (-22)	224	57	66	38	0.30	0.70	5.85	1.47	1.71	
-25 (-13)	304	77	89	43	0.35	0.95	7.00	1.76	2.05	
-20 (- 4)	403	101	118	49	0.40	1.27	8.28	2.09	2.43	
-15 (+ 5)	517	130	152	54	0.44	1.63	9.66	2.43	2.83	
-10 (+14)	646	163	189	58	0.47	2.04	11.10	2.80	3.25	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	158	40	46	35	0.30	0.50	4.48	1.13	1.31	
-30 (-22)	211	53	62	40	0.34	0.66	5.31	1.34	1.56	
-25 (-13)	286	72	84	46	0.38	0.90	6.28	1.58	1.84	
-20 (- 4)	380	96	111	52	0.42	1.19	7.34	1.85	2.15	
-15 (+ 5)	491	124	144	58	0.47	1.54	8.46	2.13	2.48	
-10 (+14)	615	155	180	64	0.51	1.94	9.62	2.42	2.82	

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@220V3000RPM		Static								
Evaporating temperature	Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE			
	+/- 5%						+/- 7%			
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]	
-35 (-31)	132	33	39	35	0.28	0.41	3.80	0.96	1.11	
-30 (-22)	183	46	53	40	0.31	0.57	4.61	1.16	1.35	
-25 (-13)	256	64	75	46	0.36	0.80	5.52	1.39	1.62	
-20 (- 4)	348	88	102	54	0.42	1.09	6.49	1.63	1.90	
-15 (+ 5)	458	115	134	61	0.48	1.44	7.48	1.88	2.19	
-10 (+14)	581	146	170	69	0.54	1.83	8.46	2.13	2.48	

### E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		ASHRAE32 Static			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	237	60	70	53	0.39	0.74	4.46	1.12	1.31	
-30 (-22)	340	86	100	61	0.48	1.07	5.53	1.39	1.62	
-25 (-13)	450	113	132	69	0.54	1.41	6.56	1.65	1.92	
-20 (- 4)	570	144	167	75	0.60	1.79	7.59	1.91	2.22	
-15 (+ 5)	703	177	206	81	0.64	2.21	8.66	2.18	2.54	
-10 (+14)	853	215	250	87	0.68	2.69	9.81	2.47	2.87	

TEST CONDITIONS: @220V4500RPM		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	216	55	63	54	0.44	0.68	4.03	1.02	1.18	
-30 (-22)	320	81	94	63	0.52	1.00	5.03	1.27	1.47	
-25 (-13)	431	108	126	72	0.58	1.35	5.96	1.50	1.75	
-20 (- 4)	551	139	162	81	0.64	1.73	6.86	1.73	2.01	
-15 (+ 5)	686	173	201	88	0.69	2.16	7.77	1.96	2.28	
-10 (+14)	836	211	245	96	0.74	2.64	8.72	2.20	2.56	

TEST CONDITIONS: @220V4500RPM		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	176	44	52	50	0.37	0.55	3.50	0.88	1.03	
-30 (-22)	282	71	82	62	0.47	0.88	4.51	1.14	1.32	
-25 (-13)	394	99	116	73	0.55	1.24	5.42	1.37	1.59	
-20 (- 4)	517	130	152	83	0.63	1.63	6.27	1.58	1.84	
-15 (+ 5)	654	165	192	92	0.71	2.06	7.09	1.79	2.08	
-10 (+14)	807	203	237	102	0.79	2.55	7.93	2.00	2.32	

### F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 28° up + 25° to Back		
3.2 DISCHARGE	5.1 +0.10/+0.00	[mm]	(0.201" +0.004"/+0.000")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted parallel BP+24°to Back		
3.3 PROCESS	6 +0.08/-0.08	[mm]	(0.236" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 42° up + 45° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		